Information Disclosure Statement

The Examiner identifies questions concerning statements made in the Information Disclosure Statement (IDS) filed July 19, 2002.

The Examiner asserts that it is not clear to which application the Applicant is referring, in the IDS. The IDS, filed July 19, 2002, refers to 09/583,629, "Coating Methods and Apparatus for Coating," filed May 31, 2000.

Also, the Examiner inquires as to the date of the potential offer to or for sale. The exact date is not germane because the IDS states that any "potential disclosure or sales activity" was "more than one year prior to the filing date." A more specific date would not affect any legal analysis.

Next, the Office action inquires as to whether the "Synchronization" described in the IDS comprises other features of the claims. In response, the following information was obtained upon investigation of information relating to potential sale or disclosure activity described in the IDS. Consistent with the IDS, e.g., at paragraphs 1, 3, and 6, The System included software commands that were available but not implemented, that could have been used in a program (but were not) to perform features of the pending claims in a process for controlling spin-coating application of a developer solution. To the extent that any such programming step was available in the system software, such programming step was not implemented or used in a program or method of coating a developer solution, and any such programming step was not specifically disclosed to exist or to be an available programming step. Consistent with the IDS, and based on our present investigation, the claims that include these features are claims: 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30. With respect to the features of claims 12, 13, 19, and 20, these features depend on claims 10 and 18 that include features not implemented as described above.

With respect to the features of claim 3, Applicants' investigation did not result in a determination as to the availability or presence of the features of claims 3. Further investigation could be made upon request by the Examiner if considered to be necessary.

If deemed necessary, Applicants will review additional information that can be ascertained, e.g., relating to programming of the coat station mentioned at paragraph 2 of the IDS. In this regard, Applicants note that all of the pending claims relate to process control

steps and apparatus for application of <u>developer solution</u> by spin-coating. It is Applicants' position that even if any one or more of the specific process control features recited in a pending claim with respect to applying developer solution, were available or used in The System to apply a photoresist material (e.g., as referenced in paragraph 2 of the IDS), it would not have been obvious to use that process control feature in combination with a developer solution.

The Rejections Under 35 U.S.C. §103

Applicants' claims stand rejected under 35 USC §103(a) as being unpatentable over Applicants' Figure 1 in view of Moyer et al. (US 6,378,022) or Skeirik (US 5,058,043).

According to the Office action:

> The Prior Art of Fig. 1 has the basic serial process. The secondary references disclose interrupting the basic process to execute an interrupt signal. Skeirik discloses a timing sequence. With the ability to use multiple expert systems in the manufacturing process, plural timers will be used in parallel. Moyer et al. disclose a method of using interruptible signal in a complex multiple process system. The system has the ability to evaluate multiple interrupt signals and timed events. One of ordinary skill in the art at the time the invention was made would have recognized that the teachings of these references could be applied to any semiconductor processing stage and thus enable greater throughput while still addressing any condition.

The rejection is traversed for all of Applicants' pending claims.

All pending claims relate to methods and apparatus that involve application of a <u>developer solution,</u> by <u>spin-coating</u>. The secondary references have not been convincingly shown to suggest using any specific control method in the specific context of Applicants' claims--i.e., spin-coating a developer solution--or to provide motivation for one of skill to apply a specific control method to applications that involve developer solutions and spin-coating. Thus, the rejection is not supported.

To support a *prima facie* obviousness rejection, an Office action must identify within the prior art, each and every element of a claim. <u>Applicants do not concede that this has been done.</u> Beyond that requirement, however, a rejection must further identify a motivation that flows from some teaching in the prior art or from knowledge generally available in the prior art, to modify the prior art to arrive at the claimed subject matter. A mere conclusion that it would have been obvious to modify a prior art reference to arrive at

3

claimed subject matter is not sufficient. A rejection must include a convincing line of reasoning as to why the skilled artisan would have found the claimed invention to have been obvious in view of the teachings of cited references.

The rejection is premised on the conclusion that one of skill would have used a process of either of the two cited secondary references in a method of spin-coating a developer solution as shown in Figure 1. No convincing line of reasoning is included to support this conclusion.

The secondary references do not specifically apply a process control system to methods of spin-coating developer onto a substrate. To make up for this shortcoming in the secondary references, the Office action asserts that it would have been obvious to use a process control system of either secondary reference, "in <u>any</u> semiconductor processing stage," and "thus enable greater throughput while still addressing any condition":

> One of ordinary skill . . . made would have recognized that the teachings of these [secondary] references could be applied to any semiconductor processing stage and thus enable greater throughput while still addressing any condition.

This unsupported conclusion does *not* amount to a convincing line of reasoning supportive of the outstanding rejection.

In general, it is not convincing to assert that just *any* process control system that may be generally found in the prior art would have been obvious to use within a more specific application not mentioned in the reference, or more specifically according to the rejection, in "any semiconductor processing stage." Instead, the stated conclusion of obviousness is tantamount to the conclusion that *any* control system that might be merely identified to exist in the prior art, is obvious to use with *any* and every possible process. Such conclusion ignores the requirements of the law that a suggestion and motivation be identified to support an obviousness rejection. Because the outstanding rejection lacks a showing of a motivation or suggestion (<u>found within the prior art</u>) to apply a process control system as claimed to spin-coating a developer to a substrate, the rejection can be based only on an improper hindsight conclusion of obvious, and is therefore un-supported and untenable.

Looking to each of the cited secondary references, neither is shown to specifically suggest or provide motivation to apply a process control methodology to a method of *spin-coating a developer solution*.

The Moyer et al. reference ("Moyer") discusses methods and apparatus that perform "data processing," and more particularly, "processing multi-cycle instructions that may be interrupted during execution." Moyer does not mention either spin-coating processes generally, or developer solutions as applied using spin-coating processes more specifically, from among all possible controllable methods or data processing applications. Thus, it cannot be said that the Moyer reference itself contains a suggestion to control a process of spin-coating a developer solution. The overall description of a control system by Moyer does not amount to a motivation or suggestion to use that system in every application of process control or data processing.

The rejection concludes that a Moyer control system applied to "any semiconductor processing stage" would "enable greater throughput while still addressing any condition." This non-specific conclusion lacks support within the reference. The Moyer reference does not suggest that its described process control system (even if similar to Applicants', which again is not admitted) can be applied to address "any condition" of "any semiconductor processing stage." Moreover, the Moyer reference does not suggest that its process control system can "enable greater throughput" when applied to "any semiconductor processing stage." Thus, the assertion offered in the Office action to support the rejection based on Moyer, is not in fact supported by the Moyer reference. The rejection, therefore, does not contain any convincing line of reasoning as to why one of skill would have applied a method of Moyer to the system of Figure 1. The only reasoning found in the Office action is entirely conclusory, and is not based on a suggestion found in the Moyer reference. These grounds of rejection, therefore, are not legally tenable and should be withdrawn.

The rejection based on Skeirik as a secondary reference is likewise unsupported and untenable. The Skeirik reference generally describes methods of "batch process control," "in an expert system knowledge base." The Office action does not provide a line of reasoning as to whether, generally or specifically, such "batch process control" of "an expert system knowledge base" is believed to include steps or methods of applying a developer solution using a spin-coating process. The Skeirik reference is not shown to specifically mention either spin-coating processes generally, or developer solutions as applied using spin-coating processes more specifically, from among all possible controllable methods or data processing applications.

5

The rejection asserts that application of a Skeirik control system to "any semiconductor processing stage" would "enable greater throughput while still addressing any condition." This conclusion is unsupported. The Skeirik reference does not suggest that its described process control system (even if similar to Applicants', which is not admitted) can be applied to address "any condition" of "any semiconductor processing stage," or that its process control system can "enable greater throughput" when applied to "any semiconductor processing stage." Consequently, the rejection based on Figure 1 in view of Skeirik, is not supported by a convincing line of reasoning. The only reasoning supplied by the Office action is a mere unsupported conclusion based not on a suggestion found in the prior art, but apparently on hindsight. These grounds of rejection, therefore, are not legally tenable and should be withdrawn.

In sum, the cited prior art cannot truly be said to teach or suggest the subject matter of Applicants' claims, which relates to spin-coating a developer solution. Regardless of the specific features of Figure 1, and regardless of the specific process control steps of the secondary references, the Office action identifies no convincing line of reasoning to show that one of skill would have applied a process described by a secondary reference to spin-coating a developer solution as claimed.

The secondary references do not by themselves, in any sense, describe or suggest applying process control features to a spin-coating method, much less during specific application of a developer solution. The rejection, not being supported by the cited references, can only be based on improper hindsight. That is, the rejection is based on the imputed existence in the prior art of certain process control features; while the prior art does not describe or suggest to use those process control features in the context of spin-coating or developer solutions, the rejection summarily concludes that it would have been obvious to apply those (or by implication any other) process control features to any type of process and data processing application. In essence, the Office action bases an obviousness rejection on the ability to (assertedly) identify features of claimed subject matter, separately, as part of the prior art. Once such separate features are asserted to exist, the Office action, in pure hindsight, asserts the legal conclusion of obviousness of their combination.

6

Should there be any doubt as to the hindsight nature of the rejection, the specific language of the Office action should be considered. The entirety of support for combining the secondary references with a spin-coating method is as follows:

> One of ordinary skill . . . would have recognized that the teachings of these [secondary] references could be applied to any semiconductor processing stage and thus enable greater throughput while still addressing any condition.

This assertion, according to its literal language, does not even allege that either secondary reference is the source of a teaching or suggestion to apply their subject matter to a semiconductor process, or more specifically to a process of spin-coating a developer solution. The assertion is a mere conclusion that one of skill would have arrived at the described subject matter, and that conclusion, as described above, is not supported by either cited reference.

Such a rejection is untenable, since such a rejection is not grounded in a suggestion or motivation shown to originate from the cited prior art. Instead, such a rejection must have been improperly based on Applicants' own specification and claims, in hindsight. It is axiomatic to the patent law that a rejection cannot be based on a hindsight reconstruction of the prior art, e.g., by picking and choosing separate elements of the prior art and combining those select elements to arrive at the subject matter claimed.

In sum, the rejection of Applicants' claims as obvious over the cited combination of references lacks support and the rejection should be withdrawn.

The Examiner is invited to contact the undersigned, at the Examiner's convenience, should the Examiner have any questions regarding this communication or the present patent application.

Respectfully Submitted,

By: _____

Daniel C. Schulte, Reg. No. 40,160

33072

PATENT TRADEMARK OFFICE
Phone: 651-275-9806
Facsimile: 651-351-2954

Dated: _Dec. 29, 2003_
DCS#9175